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The genus *Teloschistes* in North America

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(WITH TWO TEXT FIGURES)

The genus *Teloschistes** which was proposed by Norman (Conat. gen. nullull. Lich., Nyt. Mag. Naturvid. 7: 228. *pl.* 1, *f.* 4 *a-g.* 1853) included under his division "(a) Thallus fruticulosus," beside the type species, *T. flavicans* (Sw.) Norm., only one other, *T. villosus* (Ach.) Norm., though under two other sections, i. e., *Phyllothallae* and *Placothallae*, he placed nine additional species, which have since found their proper positions in several other distinct genera. As both of the above named species are characterized by a radial thallus it is not surprising to find that later in 1861 (Gen. Het. Recog. 51) Th. Fries logically limited the genus to include only these two species and the radial *Lichen chrysophthalmus* L. The authors who have included bifacial (dorsiventral) species in Norman's genus have no good arguments in their favor, as recently pointed out by Monsieur Hue.

The present species have been found from time to time in many genera as follows: *Lichen* L., 1771; *Usnea* Hoffm., 1795; *Parmelia* Ach., 1803; *Physcia* Michx., 1803; *Borreria* Ach., 1810; *Cornicularia* Pers., 1826; *Evernia* Fries, 1831; *Hagenia* Rbhn., 1850; *Blasteniospora* Trevis., 1853; *Tornabenia* Massal., 1853.

TELOSCHISTES Norm. em. Th. Fries

DESCRIPTION: *Thallus* caespitose or prostrate, branched, without rhizoids; *cortex* glabrous or rugose-lacunose; structure simple (hyphae parallel in the surface); *lacinae* terete, subterete or angularly compressed; cinereus or yellow; medulla and axis arachnoid, simple. *Gonidia* stratified (heteromerous): *Proto-coccoid*. *Soralia* normal. *Cephalodia* unobserved. *Apothecia* lecanorine, terminal or marginal; scutelliform, applanate or concave, rarely convex; marginate, disk concolorous. *Asci* clavate,

* By many authors spelled *Theioschistes*.

containing eight spores; paraphyses gelatinous, slender, apices branched and articulate. *Spores* simple or polari-bilocular,* hyaline, ellipsoid. *Spermagones* oblong-ellipsoid. *Sterigmata* simple. *Spermatia* cylindrical.

OBSERVATIONS: There are but three species of the genus common in North America, and only one of these has a wide distribution throughout the area.

Key to the species

Thallus glabrous.

Laciniae slender, terete.....*T. flavicans*

Laciniae thickened, compressed.....*T. chrysophthalmus*

Thallus hispid.....*T. villosus*

TELOSCHISTES FLAVICANS (Sw.) Norm.

Lichen flavicans Sw. Nov. Gen. Spec. Pl. Prod. 147. 1788.

Teloschistes flavicans Norm. Nyt. Mag. Naturv. 7: 229. 1853.

Theloschistes chrysophthalmus b. *flavicans* Wallr. of Tuckerman.

TYPE: Untraced.

TYPE LOCALITY: "Jamaica."

ORIGINAL DESCRIPTION: "foliaceus, lineari-teretiusculus ramosus fulvus, scutellis planis marginalibus concoloribus."

FIGURES: Swartz, Lich. Amer. pl. 2. 1811.

DIAGNOSIS: *Thallus* prostrate, slender, terete, apothecial margins *eciliate*.

DESCRIPTION (typical): *Thallus* caespitose or prostrate, rarely subpendulous (alt. 5 cm.), subrigid, terete or subterete, yellow or pale virescent; *cortex* glabrous, rarely puberulent, often papillo-soraliate (white), sublacunose; *branches* thyrsoid-entangled (maximum width 2 mm.), apices attenuate, flexuous, fibrillose. *Apothecia* common (except at northern limit of range), lateral, concave, marginate, margins *eciliate*, disk concolorous to vitelline (maximum diameter 3 mm.). *Spores* polari-bilocular, $6.5\text{--}12 \times 12\text{--}20 \mu$.

CONTINGENT PHASES: Unobserved.

SUBSTRATA: Trees and shrubs; "rocks and earth" *Herre*.

GEOGRAPHICAL DISTRIBUTION: Not uncommon in the Austral Zone. It extends on the Atlantic Coast from Newfoundland to Nantucket, Bermuda and Florida, and west to the Santa Cruz Peninsula, California. It occurs also throughout the West Indies and northern South America.

* Rarely tetrablast.

OBSERVATIONS: This species, distinguished by its slender, subterete thallus, has a largely maritime distribution above the thirty-second parallel. It shows a transitional development of growth from the slender subpendulous plants growing in littoral localities to the more robust, caespitose plants that back the coast and intergrade toward the species *T. chrysophthalmus*. It shows also an interesting transitional coloration from the more virescent shades of the northern examples to the bright yellow southern Gulf specimens which approach or are identical with *Cornicularia crocea* Ach.

EXSICCATI: Merrill, Lich. Exsicc. 59.

TELOSCHISTES CHRYSOPHTHALMUS (L.) Th. Fries

Lichen chrysophthalmus L. Mant. 311. 1771.

Theloschistes chrysophthalmus Th. Fries, Gen. Het. Recog. 51. 1861.

TYPE: In the Linnean herbarium, Burlington House, London, England.

TYPE LOCALITY: "Cap. b. spei."

ORIGINAL DESCRIPTION: "Foliaceus subimbricatus linearis lacerus ciliatus; peltis elevatis radiatis fulvis."

FIGURE: Wulf; Jacq. Coll. *pl.* 4, *f.* 3. 1786.

DIAGNOSIS: *Thallus* erect, compressed, apothecial margins *ciliate*.

DESCRIPTION (typical): *Thallus* caespitose (alt. 2 cm.), subrigid, subterete, compressed or angulate; yellow or pale virescent; *cortex* glabrous, often puberulent, lacunose-rugose, rarely reticulate; *branches* dichotomous (maximum width 3 mm.), generally paler below, apices multifid, fibrillose. *Apothecia* common, subterminal, concave or convex, marginate or emarginate, margins radiantly ciliate, disk yellow to vitelline (maximum diameter 5 mm.). *Spores* polari-bilocular $10-18 \times 5-8 \mu$.

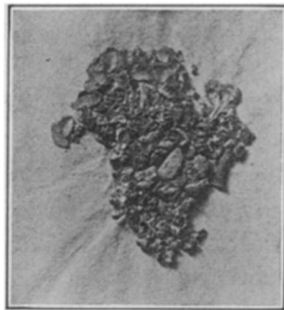


FIG. 1. The Linnean type of *Lichen chrysophthalmus*.

CONTINGENT PHASES: (a) *Thallus* cinereous, apothecial margins *eciliate* (= *Physcia exilis* Michx. Fl. Amer. 2: 327. 1803.).*

* Type locality: "Carolinae." Original Description: "P. pusilla, sordide exalbida-divaricatim intricatimque setaceo-ramosissima: scutellis minutis, lateralibus, planius,

SUBSTRATA: Trees, shrubs and rocks (type).

GEOGRAPHICAL DISTRIBUTION: Occurs commonly in the Austral and Transitional Zones from Ontario to North Carolina, west to Ohio, Illinois, Iowa, Wisconsin, Minnesota and California, and southward.

OBSERVATIONS: This species has the widest distribution of the members of the genus in our area, and is easily recognized. Though Dr. Wainio cites Michaux's *Physcia exilis* as a species on account of its pale thallus and eciliate apothecia, these characters are only phases of this plant. The color of the thallus is rarely pure yellow in true *T. chrysophthalmus*, and is not so in the type. Neither did Linnaeus describe it as yellow. The condition with ciliate apothecia is such a variable development that it hardly warrants even varietal recognition.

EXSICCATI: Cummings, No. Amer. Lichens 19, 84, 97, 98; Howe, Lich. Novae Angliae 54; Tuck. Lich. Amer. Sept. 80, as *Parmelia chrysophthalma*.

TELOSCHISTES VILLOSUS (Ach.) Norm.

Parmelia villosa Ach. Meth. Lich. 254. 1803.

Teloschistes villosus Norm. Nyt. Mag. Naturv. 7: 228. 1853.

TYPE: In the Acharian herbarium, Helsingfors, Finland.

TYPE LOCALITY: "Peru," etc.

ORIGINAL DESCRIPTION: "Thallo membranaceo caespitoso villosulo-hispido cinereo subtus albido nudo canaliculato, laciniis linearibus ramosis subflexuosis; scutellis lateralibus rubris."

FIGURE: Ach. Lich. Univ. pl. 9, f. 8. 1910.

DIAGNOSIS: *Thallus* suberect, compressed-canaliculate, hispid, apothecial disk red.

DESCRIPTION (typical): *Thallus* caespitose (alt. 4 cm.), sub-rigid, compressed-canaliculate, cinereous; *cortex* glabrous, hispid above; dichotomous (maximum width 2 mm.), lacinate, attenuate, apices subterete. *Apothecia* uncommon, subterminal, concave, marginate, disk red (maximum diameter 3 mm.). *Spores* simple, $11-16 \times 4.5-6 \mu$.

culis, nitide croceis, margine simplici." = *Parmelia chrysophthalmus* β *exilis* Tuck., Synop. Lich. N. E. 31. 1848. Also *Physcia villosa* var. *Dickienna* Linds. Trans. Roy. Soc. Edin. 22: 254. 1867. *Teloschistes flavicans* f. *cinerascens* Müll. Arg. (Bot. Jahrb. 15: 513. 1893) shows the parallel phase in the preceding species.

SUBSTRATA: Shrubs.

GEOGRAPHICAL DISTRIBUTION: Not uncommon in the Transition Zone from Santa Cruz Island south to Lower California.

OBSERVATIONS: This well marked species was added to our lichen flora in 1910 when I recorded specimens collected by

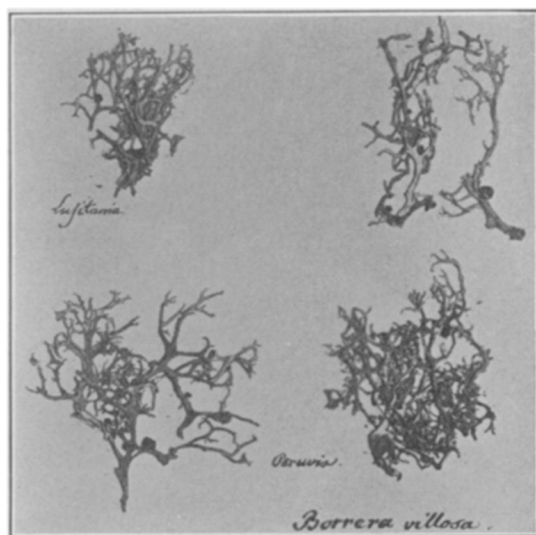


FIG. 2. The Acharian type of *Parmelia villosa*.

Miss Blanche Trask in 1892.* It had been secured, however, in Lower California at an earlier date and distributed in Miss Cummings's Exsiccati.

EXSICCATI: Cummings, No. Amer. Lichens 154.

* See also Hasse, Bryologist 13: 61. 1910.
Bot. Gaz. 49: 320; 50: 159. 1910.